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23. An LED circuit according to claim 10; further comprising a boosting circuit for boosting a power supply voltage used for driving the LED when the constant current falls below a predetermined value.

ADDITIONAL FEES:

A check in the amount of \$54.00 is enclosed to cover the cost of 3 claims in excess of 20 total. Should the check prove insufficient for any reason, authorization is hereby given to charge any such deficiency to our Deposit Account No. 01-0268.

IN THE ABSTRACT:

Delete the abstract now of record and insert therefor the new abstract submitted herewith on a separate sheet.

REMARKS

In order to place this application in condition for a complete action on the merits, the specification has been revised in minor respects to correct informalities. Claims 1-9 have been amended in formal respects to improve the wording and bring them into better conformance with U.S. practice. Attached hereto is a marked-up version of the

changes made to the specification and claims by the current amendment. The attached pages are captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE." To obtain a fuller scope of coverage, new claims 10-23 have been added. Adequate support for the subject matter recited in these claims may be found in the specification as originally filed.

Early and favorable action on the merits are respectfully requested.

Respectfully submitted,

ADAMS & WILKS
Attorneys for Applicant

By: 

Bruce L. Adams
Reg. No. 25,386

50 Broadway - 31st Floor
New York, NY 10004
(212) 809-3700

MAILING CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner of Patents & Trademarks, Washington, D.C. 20231, on the date indicated below.

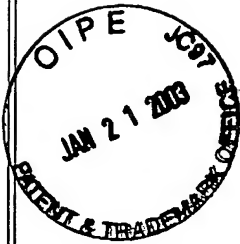

Bruce L. Adams

Attorney Name

Signature

JANUARY 16, 2003

Date



VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Paragraph beginning at line 7 of page 12 has been amended as follows:

Fig. 10 shows an LED drive circuit which represents Embodiment 4 of the present invention. The circuit shown in Fig. 10 differs from that shown in Fig. 1 in that a variable resistor 30 is used in place of the resistor 13 in the constant current generation circuit 31. The variable resistor 30 changes according to a signal voltage from an external terminal 31 [15]. It is apparent from the equation (1) that each of the currents flowing through the LEDs 19 and 20 can be changed by changing the value of the variable resistor 30.--

Paragraph beginning at line 12 of page 13 has been amended as follows:

Fig. 11 shows an LED drive circuit which represents Embodiment 5 of the present invention. The same constant current generation circuit 15 as that in the conventional arrangement is used. The reference voltage circuit 11 in the constant current generation circuit 15 is supplied with power through the power supply terminal 10 connected thereto. A boosting circuit 101 boosts the voltage V_{dd} [V] applied to the

power supply terminal 10 to a higher voltage VDDU [V] obtained through a terminal 100. The boosting circuit 101 may be realized as any type of circuit, e.g., a charge pump type using a capacitance or a switching regulator type using a coil if it can perform a boosting function. An output of a comparator 60 is connected to the boosting circuit 101. ON/OFF control of the operation of the boosting circuit 101 is performed on the basis of the output voltage of the comparator 60. The plus terminal input voltage Vref [V] of the error amplifier circuit [13] 12 in the constant current generation circuit 15 is applied to the plus terminal of the comparator 60, while the minus terminal input voltage Va [V] of the error amplifier circuit [13] 12 is applied to the minus terminal of the comparator 60.

IN THE CLAIMS:

Claims 1-9 have been amended as follows:

1. (Amended) An LED drive circuit [formed] comprising:

a driver having a constant current circuit for driving [to drive] a plurality of [light emitting diodes (] LEDs [)]; and

at least one [a plurality of] switch connected to a respective [the each] LED for periodically turning on and off

the respective LED [at least one of the LEDs] at certain time intervals.

2. (Amended) An LED drive circuit according to claim 1; [,] wherein the frequency of turning on and off the respective LED [in a cycle] is 5 Hz or higher.

3. (Amended) An LED drive circuit according to claim 1; [,] wherein the value of the constant current produced by the constant current circuit for driving the LEDs [by which the LED is driven] is in the range of about 5 to 30 mA.

4. (Amended) An LED drive circuit according to claim 1; further comprising a switch control circuit for controlling the at least one switch in response to an external signal to vary an on/off cycle time of [, wherein] the respective LED [turning on/off cycle time can be controlled by means of an external signal].

5. (Amended) An LED drive circuit according to claim 1; wherein the at least one switch comprises a plurality of switches each connected to a respective LED; and further comprising a switch control circuit for controlling the switches in response to an external signal to select at least one [, wherein the] LED to be turned on and off [caused to blink can be selected by means of an external signal].

6. (Amended) An LED drive circuit according to claim 1; [,] wherein the [value of the] constant current circuit has an external terminal for receiving a signal for setting the constant current value for driving the LEDs [by which the LED is driven can be selected by means of an external signal].

7. (Amended) An LED drive circuit according to claim 1; [,] wherein the value of the constant current produced by the constant current circuit varies in accordance with [by which the LED is driven can be adjusted according to] temperature.

8. (Amended) An LED drive circuit comprising: a driver circuit having a boosting circuit for boosting a power source voltage and outputting a boosted voltage and a constant current circuit for producing a constant current for driving [to drive] an LED; and a control circuit for controlling the boosting circuit to increase the boosted voltage [boosted by the boosting circuit] when the constant current for driving the LED is smaller than [the value of the] a predetermined value [constant current], and for reducing the [voltage] boosted voltage [by the boosting circuit] when the constant current [for driving the LED] has the predetermined value [of the constant current].

9. (Amended) An LED drive circuit [formed] comprising: driving means for driving [each of] at least two LEDs by producing a constant current and [by using a boosting circuit and] a boosted voltage [boosted by the boosting circuit]; and means for increasing the [voltage] boosted voltage [by the boosting circuit] when the constant current [for driving the LED] is smaller than a predetermined [the] value [of the constant current], for reducing the boosted voltage [boosted by the boosting circuit] when the constant current [for driving the LED] has the predetermined value [of the constant current], and for periodically turning on and off at least one of the LEDs at certain time intervals.